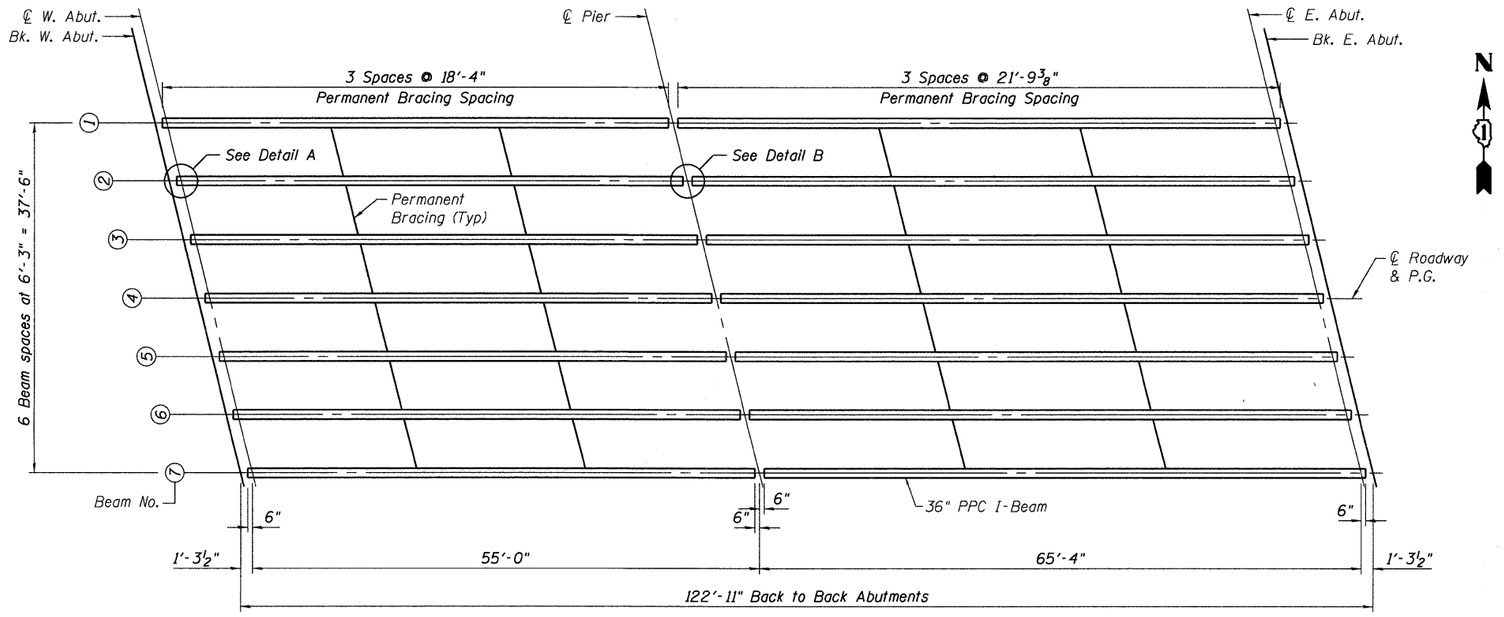
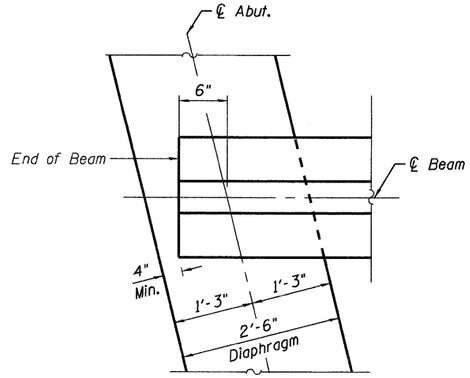
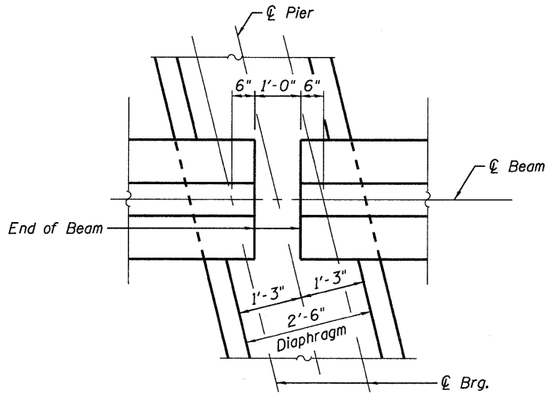


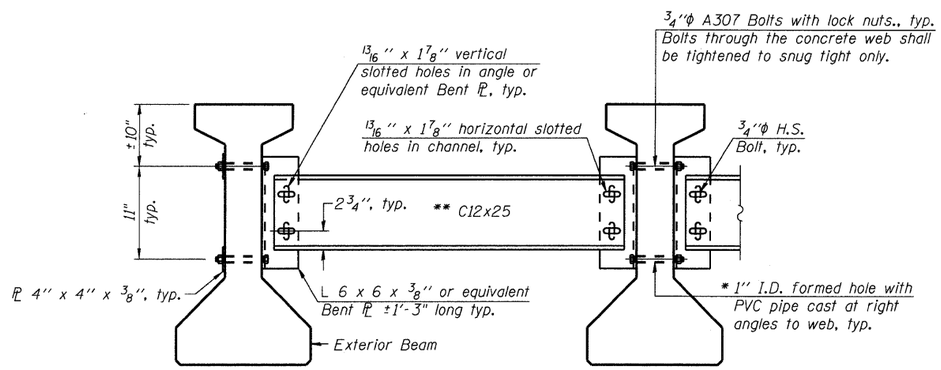
PLAN



DETAIL A



DETAIL B



Notes:

All material for bracing shall be hot dip galvanized according to AASHTO M111 unless otherwise noted.

Two hardened washers are required for each set of oversized holes.

All holes shall be 15/16"ϕ unless otherwise noted.

5/16" x 3" x 3" plate washers are required over all slotted holes.

All bolts shall be galvanized according to AASHTO M232.

Bracing shall be installed as beams are erected and tightened as soon as possible during erection.

Cost of Permanent Bracing shall be included in the cost of Furnishing and Erecting Precast Prestressed Concrete I-Beams.

* Fabricator shall locate to miss strands within permissible tolerances.

** Alternate C12x30 channels are permitted to facilitate material acquisition. Calculated weight of structural steel is based on lighter section. The alternate, if utilized, shall be provided at no extra cost to the Department.

PERMANENT BRACING DETAILS FOR 36" PPC I-BEAMS

INTERIOR BEAM MOMENT TABLE				
		0.4 Sp. 1	Pier	0.6 Sp. 2
I	(in^4)	48648	---	48648
I'	(in^4)	176120	---	176120
S_b	(in^3)	3165.1	---	3165.1
S_b'	(in^3)	6029.4	---	6029.4
S_t	(in^3)	2358.1	---	2358.1
S_t'	(in^3)	25938.1	---	25938.1
$DC1$	(k/')	1.01	---	1.01
M_{DC1}	('k)	223.8	---	330.8
$DC2$	(k/')	0.13	0.13	0.13
M_{DC2}	('k)	23.4	56.4	42.7
DW	(k/')	0.29	0.29	0.29
M_{DW}	('k)	52	125.4	94.9
M_{L+IM}	('k)	569	564.6	674.5

INTERIOR BEAM REACTION TABLE					
		W. Abut.	Pier		E. Abut.
			Span 1	Span 2	
R_{DC1}	(k)	35.6	30.8	36.0	40.8
* R_{DC2}	(k)	2.5	4.9	4.9	3.3
* R_{DW}	(k)	5.5	10.9	10.9	7.4
* R_{L+IM}	(k)	64.8	51.7	51.7	69.6
R_{Total}	(k)	108.4	98.3	103.5	121.2

* The total R_{DC2}, R_{DW} and R_{L+IM} are assumed to be distributed evenly to each bearing line at a pier regardless of the span ratios. The bearing design at a pier is based on the maximum reactions of either span.

I: Non-composite moment of inertia of beam section ($in.^4$).
I': Composite moment of inertia of beam section ($in.^4$).
S_b: Non-composite section modulus for the bottom fiber of the prestressed beam ($in.^3$).
S_b': Composite section modulus for the bottom fiber of the prestressed beam ($in.^3$).
S_t: Non-composite section modulus for the top fiber of the prestressed beam ($in.^3$).
S_t': Composite section modulus for the top fiber of the prestressed beam ($in.^3$).
$DC1$: Un-factored non-composite dead load (kips/ft.).
M_{DC1}: Un-factored moment due to non-composite dead load (kip-ft.).
$DC2$: Un-factored long-term composite (superimposed excluding future wearing surface) dead load (kips/ft.).
M_{DC2}: Un-factored moment due to long-term composite (superimposed excluding future wearing surface) dead load (kip-ft.).
DW: Un-factored long-term composite (superimposed future wearing surface only) dead load (kips/ft.).
M_{DW}: Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load (kip-ft).
M_{L+IM}: Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).

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AECOM

USER NAME = dabezicd
PLOT SCALE = 0.1 '' / IN.
PLOT DATE = 5/28/2009

DESIGNED - DD
DRAWN - DD
CHECKED - ATB
DATE - 3/18/2009

REVISED -
REVISED -
REVISED -
REVISED -

MCHENRY COUNTY
DIVISION OF TRANSPORTATION

FRAMING PLAN
STRUCTURE NO. 056-3177

SCALE: | SHEET NO. OF SHEETS | STA. | TO STA.

F.A.S. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0031	06-00323-00-BR	MCHENRY	53	32
		CONTRACT NO. 63218		
FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT		